

**Amendments to the Specification:**

Please insert the Abstract into the application as the last page thereof.

**Abstract**

A system or method for controlling the delivery of fuel into the transient flow of an exhaust system to control emissions. A mathematical model representative of the exhaust system can be used to determine, based on operating conditions of the exhaust system, a rate of fuel delivery suitable for achieving a desired result. The desired result can be to increase the temperature of a diesel particulate filter to a temperature suitable for regeneration without exceeding a temperature that may damage the diesel particulate filter.